

ACM SIGGRAPH 2001 Conference Proceedings



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New York University, University of Toronto



2001 ACM SIGGRAPH Awards

2001 ACM SIGGRAPH Computer Graphics Achievement Award

2001 ACM SIGGRAPH Steven A. Coons Award

2001 ACM SIGGRAPH Significant New Researcher Award



Natural Animation

Session Chair: Demetri Terzopoulos (New York University and University of Toronto)

Visual Simulation of Smoke

Ronald Fedkiw, Henrik Wann Jensen (Stanford University)
Jos Stam (Alias|Wavefront)

Practical Animation of Liquids

Nick Foster (PDI/DreamWorks)
Ronald Fedkiw (Stanford University)

Dynamic Real-Time Deformations Using Space and Time Adaptive Sampling

Gilles Debunne, Marie-Paule Cani (IMAGIS-GRAVIR)
Mathieu Desbrun (University of Southern California)
Alan H. Barr (California Institute of Technology)

Optimization-Based Animation

Victor J. Milenkovic, Harald Schmidl (University of Miami)



Volumetric and Graphing Techniques

Session Chair: John C. Hart (University of Illinois at Urbana-Champaign)

Kizamu: A System for Sculpting Digital Characters

Ronald N. Perry, Sarah F. Frisken (Mitsubishi Electric Research Laboratory)

Feature-Sensitive Surface Extraction From Volume Data

Leif Kobbelt, Mario Botsch (Rheinisch-Westfälische Technische Hochschule Aachen)
Ulrich Schwanecke, Hans-Peter Seidel (Max-Planck-Institut für Informatik)

Reconstruction and Representation of 3D Objects With Radial Basis Functions

Jonathan C. Carr, Tim J. Mitchell (Applied Research Associates NZ Limited & University of Canterbury)
Richard K. Beatson (University of Canterbury)
Jon B. Cherrie, W. Richard Fright (Applied Research Associates NZ Limited)
Bruce C. McCallum, Tim R. Evans (Applied Research Associates NZ Limited)

Reliable Two-Dimensional Graphing Methods for Mathematical Formulae with Two Free Variables

Jeff Tupper (University of Toronto)



Reality-Based Modeling

Session Chair: Steven Seitz (The University of Washington)

Scanning Physical Interaction Behavior of 3D Objects

Dinesh K. Pai, Kees van den Doel, Doug L. James, Jochen Lang (University of British Columbia)
John E. Lloyd, Joshua L. Richmond, Som H. Yau (University of British Columbia)

Synthesizing Bidirectional Texture Functions for Real-World Surfaces

Xinguo Liu, Heung-Yeung Shum (Microsoft Research)
Yizhou Yu (University of Illinois at Urbana-Champaign)

Image-Based Rendering of Diffuse, Specular and Glossy Surfaces From a Single Image

Samuel Boivin, André Gagalowicz (INRIA Rocquencourt)

A Signal-Processing Framework for Inverse Rendering

Ravi Ramamoorthi, Pat Hanrahan (Stanford University)



Hardware and Hardware Rendering

Session Chair: Wolfgang Heidrich (University of British Columbia)en

WireGL: A Scalable Graphics System for Clusters

Greg Humphreys, Matthew Eldridge, Ian Buck, Matthew Everett, Pat Hanrahan (Stanford University)
Gordon Stoll (Intel Corporation)

Lightning-2: A High-Performance Display Subsystem for PC Clusters

Gordon Stoll, Dan Patterson, Art Webb (Intel Corporation)
Chris Caywood, Milton Taveira, Stephen Hunt (Intel Corporation)
Matthew Eldridge, Pat Hanrahan (Stanford University)
Steven Berman, Richard Levy (Cornell University)

A User-Programmable Vertex Engine

Erik Lindholm, Mark J. Kilgard, Henry Moreton (NVIDIA Corporation)

A Real-Time Procedural Shading System for Programmable Graphics Hardware

Kekoa Proudfoot, William R. Mark, Pat Hanrahan (Stanford University)
Svetoslav Tzvetkov (NVIDIA Corporation)

Homomorphic Factorization of BRDFs for High-performance Rendering

Michael D. McCool, Jason Ang, Anis Ahmad (University of Waterloo)



Meshes

Session Chair: Gabriel Taubin (California Institute of Technology)

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Emil Praun (Princeton University)
Wim Sweldens (Lucent Technologies, Bell Labs)
Peter Schröder (California Institute of Technology)

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Daniel Kristjansson, Henning Biermann, Denis Zorin (New York University)

Progressive Compression for Lossless Transmission of Triangle Meshes

Pierre Alliez, Mathieu Desbrun (University of Southern California)

Topology Matching for Fully Automatic Similarity Estimation of 3D Shapes

Masaki Hilaga, Yoshihisa Shinagawa (The University of Tokyo)
Taku Kohmura (RIKEN (The Institute of Physical and Chemical Research))
Tosiyasu L. Kunii (Hosei University)



Measurement and Presentation

Session Chair: Holly Rushmeier (IBM T. J. Watson Research Center)

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Benjamin Watson (Northwestern University)
Alinda Friedman, Aaron McGaffey (University of Alberta)

Perception-Guided Global Illumination Solution for Animation Rendering

Karol Myszkowski, Takehiro Tawara (Max-Planck-Institut für Informatik)
Hiroyuki Akamine, Hans-Peter Seidel (Max-Planck-Institut für Informatik)

Interactive Stereoscopic Display for Three or More Users

Yoshifumi Kitamura, Sumihiko Yamamoto, Fumio Kishino (Osaka University)
Takashige Konishi (Toppan Printing Co., Ltd.)

Rendering Effective Route Maps: Improving Usability Through Generalization

Maneesh Agrawala, Chris Stolte (Stanford University)



Animation and Expression

Session Chair: Dinesh K. Pai (University of British Columbia)

Composable Controllers for Physics-Based Character Animation

Petros Faloutsos, Michiel van de Panne (University of Toronto)
Demetri Terzopoulos (New York University and University of Toronto)

Automating Gait Animation

Harold C. Sun, Dimitris N. Metaxas (University of Pennsylvania)

Expressive Expression Mapping With Ratio Images

Zicheng Liu, Ying Shan, Zhengyou Zhang (Microsoft Research)

Expression Cloning

Jun-yong Noh, Ulrich Neumann (University of Southern California)



Procedural Modeling

Session Chair: Henry Moreton (NVIDIA Corporation)

The Use of Positional Information in the Modeling of Plants

Przemyslaw Prusinkiewicz, Lars Mündermann (University of Calgary)

Radoslaw Karwowski, Brendan Lane (University of Calgary)

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Yoav I. H. Parish, Pascal Müller (Eidgenössische Technische Hochschule Zürich)

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Justin Legakis, Julie Dorsey (Massachusetts Institute of Technology)

Steven J. Gortler (Harvard University)

Integrating Shape and Pattern in Mammalian Models

Marcelo Walter (Universidade do Vale do Rio dos Sinos)

Alain Fournier (University of British Columbia)

Daniel Menevaux (Laboratoire SIC)



Images and Textures

Session Chair: Przemyslaw Prusinkiewicz (University of Calgary)

Image Analogies

Aaron Hertzmann (New York University and Microsoft Research)

Charles E. Jacobs, Nuria Oliver (Microsoft Research)

Brian Curless (The University of Washington)

David H. Salesin (The University of Washington and Microsoft Research)

Image Quilting for Texture Synthesis and Transfer

Alexei A. Efros (University of California, Berkeley)

William T. Freeman (Mitsubishi Electric Research Laboratory)

Texture Synthesis on Surfaces

Greg Turk (Georgia Institute of Technology)

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Li-Yi Wei, Marc Levoy (Stanford University)



Point-Based Rendering and Shadows

Session Chair: Hanspeter Pfister (Mitsubishi Electric Research Laboratory)

The Randomized Z-Buffer Algorithm: Interactive Rendering of Highly Complex Scenes

Michael Wand, Ingmar Peter, Wolfgang Straßer (Universität Tübingen)
Matthias Fischer, Friedhelm Meyer auf der Heide (Universität Paderborn)

Surface Splatting

Matthias Zwicker, Markus Gross (Eidgenössische Technische Hochschule Zürich)
Hanspeter Pfister, Jeroen van Baar (Mitsubishi Electric Research Laboratory)

Spectral Processing of Point-Sampled Geometry

Mark Pauly, Markus Gross (Eidgenössische Technische Hochschule Zürich)

Adaptive Shadow Maps

Randima Fernando, Sebastian Fernandez (Cornell University)
Kavita Bala, Donald P. Greenberg (Cornell University)



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Session Chair: Mathieu Desbrun (University of Southern California and California Institute of Technology)

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Ying-Qing Xu, Yanyun Chen, Steve Lin, Hua Zhong (Microsoft Research China)
Enhua Wu, Baining Guo, Heung-Yeung Shum (Microsoft Research China)

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Henrik Wann Jensen (Stanford University)
Michael M. Stark, Simon Premoze, Peter Shirley (University of Utah)
Frédo Durand, Julie Dorsey (Massachusetts Institute of Technology)

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Pedro V. Sander, Steven J. Gortler (Harvard University)
John Snyder, Hugues Hoppe (Microsoft Research)

Constrained Texture Mapping for Polygonal Meshes

Bruno Lévy (INRIA Loria)



Image-Based Modeling and Rendering

Session Chair: Paul Debevec (USC Institute for Creative Technologies)

Unstructured Lumigraph Rendering

Chris Buehler, Michael Bosse, Leonard McMillan (Massachusetts Institute of Technology)
Steven J. Gortler (Harvard University)
Michael F. Cohen (Microsoft Research)

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Byong Mok Oh, Max Chen, Julie Dorsey, Frédo Durand (Massachusetts Institute of Technology)

Plenoptic Stitching: A Scalable Method for Reconstructing 3D Interactive Walkthroughs

Daniel G. Aliaga, Ingrid Carlbom (Lucent Technologies, Bell Labs)

Hybrid Stereo Camera: An IBR Approach for Synthesis of Very High Resolution Stereoscopic Image Sequences

Harpreet S. Sawhney, Yanlin Guo, Keith Hanna, Rakesh Kumar (Sarnoff Corporation)
Sean Adkins, Samuel Zhou (IMAX Corporation)



Hands and Words

Session Chair: David Kurlander (Microsoft Corporation)

DAB: Interactive Haptic Painting With 3D Virtual Brushes

Bill Baxter, Vincent Scheib (University of North Carolina at Chapel Hill)
Ming C. Lin, Dinesh Manocha (University of North Carolina at Chapel Hill)

Project FEELEX: Adding Haptic Surface to Graphics

Hiroo Iwata, Hiroaki Yano, Fumitaka Nakaizumi, Ryo Kawamura (University of Tsukuba)

BEAT: The Behavior Expression Animation Toolkit

Justine Cassell, Hannes Högni Vilhjálmsón, Timothy Bickmore (Massachusetts Institute of Technology)

WordsEye: A Text-to-Scene Conversion System

Bob Coyne, Richard Sproat (AT&T Labs)



The Interaction of Light and Matter

Session Chair: James Arvo (California Institute of Technology)

An Efficient Representation for Irradiance Environment Maps

Ravi Ramamoorthi, Pat Hanrahan (Stanford University)

Applying Appearance Standards to Light Reflection Models

Harold B. Westlund, Gary W. Meyer (University of Oregon)

A Practical Model for Subsurface Light Transport

Henrik Wann Jensen, Stephen R. Marschner, Marc Levoy, Pat Hanrahan (Stanford University)

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Tom Malzbender, Dan Gelb, Hans Wolters (Hewlett-Packard Laboratories)



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Session Chair: Thomas Funkhouser (Princeton University)

Synthesizing Sounds From Physically Based Motion

James F. O'Brien (University of California, Berkeley)

Perry R. Cook, Georg Essl (Princeton University)

FOLEYAUTOMATIC: Physically-Based Sound Effects for Interactive Simulation and Animation

Kees van den Doel, Paul G. Kry, Dinesh K. Pai (University of British Columbia)

Modeling Acoustics in Virtual Environments Using the Uniform Theory of Diffraction

Nicolas Tsingos, Ingrid Carlbom (Lucent Technologies, Bell Labs)

Thomas Funkhouser, Addy Ngan (Princeton University)

An Immersive, Multi-User, Musical Stage Environment

Matt Reynolds, Bernd Schoner, Joey Richards (Massachusetts Institute of Technology)

Kelly Dobson, Neil Gershenfeld (Massachusetts Institute of Technology)



Images and Image-Based Techniques

Session Chair: Brian A. Barsky (University of California, Berkeley)

Image-Based Motion Blur for Stop Motion Animation

Gabriel J. Brostow, Irfan Essa (Georgia Institute of Technology)

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Victor Ostromoukhov (Université de Montréal)

Simulating Decorative Mosaics

Alejo Hausner (University of Toronto)

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Emil Praun, Matthew Webb, Adam Finkelstein (Princeton University)
Hugues Hoppe (Microsoft Research)

